REMARKS

Preliminarily, Applicants respectfully request the Examiner to return a copy of initialed Form PTO-1449 submitted together with the Information Disclosure Statement filed on May 5, 1999. A copy of the IDS, Form PTO-1449, stamped filing receipt and copies of the references of record in the parent application are attached hereto for the Examiner's convenience.

Additionally, Applicants respectfully request the Examiner to initial the bottom two entries in Form PTO-1449 submitted together with the Information Disclosure Statement filed May 23, 2000. Copies of the IDS, second Form PTO-1449 and stamped filing receipt are attached hereto as well.

Claim 1 has been amended to incorporate therein the recitation of claims 7 and 9. Claims 7 and 9 have been canceled. Claims 8 and 10 have been amended to depend from claim 7. Entry of the amendments is respectfully requested.

Review and reconsideration on the merits are requested.

Claims 1-7 and 12-13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Otaki et al (U.S. Patent No. 5,908,676), and claims 8-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Otaki et al (U.S. Patent No. 5,908,676). Furthermore, claims 14 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Otaki et al (U.S. Patent No. 5,908,676) in view of Koyama et al (U.S. Patent No. 5,274,024).

Applicants respectfully traverse for the following reasons.

CHARACTERISTIC FEATURE OF THE INVENTION

The invention of claim 1 relates to a resin composition containing an oxygen-absorbing agent. This invention is characterized in that

A. a plurality of thermoplastic resins and/or elastomers which are substantially non-compatible are used as a resin matrix;

B. the resin and/or elastomers are a propylene polymer and an ethylene polymer;

C. the resin and/or elastomers form a layer distributed structure in the resin matrix;

D. the oxygen-absorbing agent composed of reducing iron powder and a layer of an oxidation promoter or a catalyst firmly adheres to the surface of reducing iron powder; and

E. the oxygen-absorbing agent particle has an aspect ratio of 0.6 or below being present in an amount of at least 50% and is a flat or spindle-shaped particle having a compression degree of at least 20%.

The resin composition containing a metal iron as an oxygen-absorbing agent absorbs oxygen when the metal iron is oxidized. This oxidation results in expanding the volume of the oxygen-absorbing agent to 1.8 times the original volume of the particles. Due to this expansion, the oxidized oxygen-absorbing particles protrude from the resin matrix. This causes problems such as the destruction of the coating of the resin layer, and elution of the oxygen-absorbing agent into the container contents. (See page 6, lines 9-27 of the specification.)

On the other hand, in the present invention, since a blend of a plurality of non-compatible polymers such as a propylene polymer and an ethylene polymer is used, as a resin matrix, the non-compatible polymers form a layer distributed structure when the resin composition is melt-molded. When, in this matrix having a layer-like distributed structure, the oxygen-absorbing agent is oxidized to cause volume expansion, spaces are formed by peeling layers among the separated layers on the interface of a multi layer-like distributed structure. Thus, volume

expansion is absorbed, and the advantage of preventing destruction of the coating of the resin layer can be obtained. (See page 6, line 28 to page 7, line 14 of the specification.)

PATENTABILITY OVER CITED REFERENCES AND PRIOR ART

Claims 1-7 and 12-13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Otaki et al. Claims 8-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Otaki et al. However, Otaki et al does not describe nor suggest the above characteristic E of claim 1.

In the present invention, oxygen absorbing agent particles having an aspect ratio of short axis size/long axis size of 0.6 or below are present in an amount of at least 50% and the oxygen absorbing agent particles have a compression ratio of at least 20% of a flat or spindle-shaped particle. These characteristics are important with respect to oxygen absorbability and outer appearance of the container. When oxygen absorbing agent particles having an aspect ratio of 0.6 or below are used in an amount of less than 50%, or oxygen absorbing agent particles having a compression degree of less than 20% are used, oxygen absorbing performance inferior to the oxygen absorbing agent particles is observed and the inferior outer appearance of the container is apparent. When the aspect ratio is decreased or the compression degree is increased, namely when the flatness degree is increased, the oxygen absorbing speed increases by increasing the surface area of the particles. Thus, orientation is brought about in the layer direction, namely, in the melt-fluidizing direction of the resin composition of oxygen absorbing agent particles. It is considered that this orientation prevents bulging and cracking in the thickness direction

(specification at page 12, line 30 to page 13, line 29). Such functional effect is clear from the Examples of the specification.

Example 7 of the present specification shows that when oxygen absorbing agent particles satisfying the above conditions are used, the oxygen concentration within the container after one month can be maintained at 0.16% and can be maintained after three months at 0.42%. In addition, the outer appearance of the container after absorption of oxygen was good. When oxygen absorbing agent particles having an aspect ratio of 0.6 were used in an amount of at least 60% (Comparative Example 7-1), the oxygen concentration within the container after one month was 0.34%, and the oxygen concentration after three months became 0.76%, and the outer appearance of the container deteriorated.

On the other hand, in Otaki et al, the de-oxidizing agent is described simply as "granular". There is no description nor suggestion about the aspect ratio or the compression degree. There is also no description of the functional effect of defining the aspect ratio or the compression degree.

Moreover, claim 1 has been amended to incorporate therein the recitation of claim 9, to thereby obviate the rejection for anticipation under 35 U.S.C. § 102(b). Furthermore, Applicants submit that the amended claims are patentable over Otaki et al for the foregoing reasons.

Independent claim 11 is similarly limited.

Withdrawal of the above rejections is respectfully requested.

Claims 14 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Otaki et al in view of Koyama et al (U.S. Patent No. 5,274,024).

Claim 14 relates to an oxygen-absorbing multilayer plastic cup having a layer composed of the oxygen-absorbing resin composition or described in claim 1, and claim 15 relates to a liner material for caps having a layer composed of the oxygen-absorbing resin composition described in claim 1.

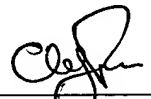
Applicants rely on the response above with respect to the rejection over Otaki et al. If claim 1 is patentable, then claims 14 and 15, depending from claim 1, are also patentable.

Withdrawal of the foregoing rejections is respectfully requested.

Withdrawal of all rejections and allowance of claims 1, 4-6, 8 and 10-15 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 7 and 9 are canceled.

The claims are amended as follows:

1. (Twice amended) A thermoplastic resin composition containing an oxygen absorbing agent, wherein a resin matrix of the thermoplastic resin composition is substantially non-compatible and is composed of blends of a plurality of thermoplastic resins and/or elastomers, one of the non-compatible thermoplastic resins and/or elastomer being a propylene polymer, and the other being an ethylene polymer, and the thermoplastic resins and/or elastomers form a multilayer distributed structure in the resin matrix, the oxygen absorbing agent comprises oxygen absorbing agent particles composed of a reducing iron powder and a layer of an oxidation promoter or a catalyst which sticks to the surface of the reducing iron powder, and the oxygen absorbing agent particle has an average particle diameter of 10 to 50 μm as measured by a laser scattering method and an aspect ratio (short axis size/long axis size) of 0.6 or below being present in an amount of at least 50% and is a flat or spindle-shaped particle having a compression degree of at least 20%.

8. (Amended) An oxygen-absorbing resin composition according to [claim 7] claim 1 wherein the oxygen absorbing agent is oxygen absorbing agent particles having the oxidation promotor or the catalyst which is present in an amount of 0.1 to 5 % by weight based

on the reducing iron powder, and has a specific surface area of at least 0.5 m^2/g and an apparent density of not larger than 2.2 g/cc.

10. (Amended) An oxygen-absorbing resin composition according to [claim 7] claim 1 wherein the oxygen absorbing agent particle is obtained by dry milling a reducing iron powder and a powder of an oxidation promotor or a catalyst.